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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,914	09/17/2003	Futoshi Nakamura	008312-0305894	2649
909	7590	08/30/2004	EXAMINER	
PILLSBURY WINTHROP, LLP			RICKMAN, HOLLY C	
P.O. BOX 10500				
MCLEAN, VA 22102			ART UNIT	PAPER NUMBER

1773

DATE MAILED: 08/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

10/663,914

### Applicant(s)

NAKAMURA ET AL.

### Examiner

Holly Rickman

### Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8,9,15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 and 20 is/are allowed.
- 6) ☒ Claim(s) 8,9 and 15 is/are rejected.
- 7) ☒ Claim(s) 17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8-9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable  
Kiuchi et al. (US 5589262).

Kiuchi et al. disclose a magnetic recording medium having a first soft magnetic layer with a first crystal structure, a second soft magnetic layer with a second crystal structure not equivalent to that of the first layer, and a perpendicular magnetic recording layer thereon (see Figures 12-13; col. 9, lines 14-23; col. 20, lines 64-67). The reference teaches that the specific examples shown in Figures 12 and 13 have a total soft magnetic layer thickness of 5000 Å (col. 9, lines 37-40). However, the reference teaches that the thickness of the soft magnetic underlayer affects the recording efficiency of the medium (Figure 49). The reference teaches that a recording efficiency of 28% or greater is sufficient and as shown in Figure 49, this value varies depending on the soft magnetic underlayer thickness and the permeability of the soft magnetic material (see col. 16, line 49 to col. 17, line 3).

Thus, it would have been obvious to one of ordinary skill in the art to determine a suitable thickness for the soft magnetic underlayer structure shown by Kiuchi et al. in Figures 12 and 13 depending on the permeability of the material and the minimum desired recording efficiency. This optimization of thickness would have been obvious since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

#### ***Allowable Subject Matter***

3. Claims 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 19-20 are allowable over the closest prior art to Kiuchi et al. (US 5589262). Kiuchi et al. fail to teach or suggest the claim limitation directed to the saturation magnetization of each individual soft magnetic layer relative to the saturation magnetization value of the layers together under a bulk state.

#### ***Response to Arguments***

5. Applicant's arguments filed 6/7/04 have been fully considered but they are not persuasive.

Applicant argues that Kiuchi et al. teaches a recording structure wherein the soft magnetic layers have domain structures as compared to the present invention which is

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described in the specification as suppressing the generation of domain walls. This argument is moot because the claims do not limit the recording medium to structure wherein domain walls are absent or suppressed.

Applicant further argues that Kiuchi et al. teach a soft magnetic layer structure having a thickness of 4.0-20.0 microns (i.e., a minimum of 40,000 Å). However, Applicant's arguments do not address the portion of the Kiuchi reference which discloses a soft magnetic layer thickness of 5000 Å. In the Office action mailed 3/23/04, it was argued that the disclosure of this thickness in combination with the teaching that soft magnetic layer thickness is a result effective variable that affects recording efficiency would have made it obvious to one of ordinary skill in the art at the time of invention to optimize this particular parameter. Applicant's arguments do not address this position.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773

hr  
August 24, 2004